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Please find below and/or attached an Office communication concerning this application or proceeding.

DETAILED ACTION

Claim Rejections - 35 USC § 102

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

2. Claims 1-36, 38-43, 45-48 and 50-51, are rejected under 35 U.S.C. 102(e) as being anticipated by Majewski et al. U.S. Patent 6,271,525.

Referring to claim 1, the Majewski reference discloses in Figures 1-4, an image pick-up apparatus (gamma camera system) comprising a wavelength converter for converting an incident radiation (gamma radiation) to a light having a wavelength detectable with a photoelectric conversion element on a sensor substrate on which plural photoelectric conversion elements (photomultiplier array 16) and switching elements (three printed circuit boards 48, 50 and 52 considered as switching elements to receive the output signal from array 16 and transmit it to outside for digitizing, see Col. 4, lines 29-32) are disposed, wherein a flattening layer (light guide 14 as shown in Figure 1, see Col. 3, lines 55-59) having a flat face making a contact with the wavelength converter (scintillator layer 12, see

Col. 3, lines 40-45) is provided between the sensor substrate (photomultiplier array 16, see

Col. 4, lines 1-10) and wavelength converter (12).

Referring to claim 2, the Majewski reference discloses wherein the flattening layer (14) is obtained by flattening a protective layer (thin layer 45) provided on the sensor substrate (16) in Figure 1 (See Col. 4, lines 22-27).

Referring to claim 3, the Majewski reference discloses wherein flattening layer (14) is provided on a protective layer (thin layer 45) on the sensor substrate (See Col. 4, lines 22-27).

Referring to claim 4, the Majewski reference discloses wherein a second flattening layer (layer 36, 38 and 40) is provided on the wavelength converter (See Col. 3, lines 35-54).

Referring to claim 5, the Majewski reference discloses wherein the second flattening layer (layer 36, 38 and 40) covers the end face of the wavelength converter as shown in Figure 1.

Referring to claim 6, the Majewski reference discloses wherein the surface of the wavelength converter (12) is flattened as shown in Figure 1.

Referring to claim 7, the Majewski reference discloses wherein a light reflection film (a thin foil of aluminum layer 36) is provided on the second flattening layer (See Col. 3, lines 23-25).

Referring to claim 8, the Majewski reference discloses wherein a light reflection film (36) is provided on the flattened wavelength converter (12) as shown in Figure 1.

Referring to claim 9, the Majewski reference discloses wherein the wavelength converter (scintillator 12) comprises a scintillator.

Referring to claim 10, the Majewski reference discloses wherein the scintillator comprises a columnar crystal (See Col. 3, lines 40-42).

Referring to claim 11, the Majewski reference discloses wherein the scintillator comprises a CsI crystal (scintillator layer 12 can be any conventional scintillator crystal).

Referring to claim 12, the Majewski reference discloses wherein the light reflection film (a thin foil of aluminum layer 36) is made of an aluminum film.

Referring to claim 13, the Majewski reference discloses all subject matter as discussed with respect to same comment as with claim 12.

Referring to claim 14, the Majewski reference discloses having plural sensor substrates (plural photomultiplier tubes 44 included in array 16).

Referring to claim 15, the Majewski reference discloses all subject matter as discussed with respect to same comment as with claim 1, and the reference also states the plural sensor substrates on which plural pairs of a photoelectric conversion element (photo pixel array 16) and a switching element (three printed circuit boards 48, 50 and 52 considered as switching element to receive the output signal from array 16 and transmit it to outside for digitizing, see Col. 4, lines 29-32).

Referring to claim 16, the Majewski reference discloses all subject matter as discussed with respect to same comment as with claim 4.

Referring to claim 17, the Majewski reference discloses all subject matter as discussed with respect to same comment as with claim 5.

Referring to claim 18, the Majewski reference discloses all subject matter as discussed with respect to same comment as with claim 7.

Referring to claim 19, the Majewski reference discloses all subject matter as discussed with respect to same comment as with claim 9.

Referring to claim 20, the Majewski reference discloses all subject matter as discussed with respect to same comment as with claim 10.

Referring to claim 21, the Majewski reference discloses all subject matter as discussed with respect to same comment as with claim 11.

Referring to claim 22, the Majewski reference discloses all subject matter as discussed with respect to same comment as with claim 12.

Referring to claim 23, the Majewski reference discloses all subject matter as discussed with respect to same comment as with claim 15, and the reference also states a signal processing means for processing the signal (digitizer 18 digitizes the output of array 16) from the image pick-up apparatus; and a display means for displaying the signal from the signal processing means as shown in Figure 4 (See Col. 2., lines 55-65).

Referring to claim 24, the Majewski reference discloses a telecommunication means for transmitting the signal from the signal processing means (See Col. 2, lines 64-65).

Referring to claim 25, the Majewski reference discloses a recording means for recording the signal from the signal processing means (computer 20 is for recoding the signal output from digitizer 18).

Referring to claim 26, the Majewski reference discloses a storage means for storing the signal from the signal processing means (computer 20 is for recoding the signal output from digitizer 18 and transfer data to remote location).

Referring to claim 27, the Majewski reference discloses all subject matter as discussed with respect to same comment as with claim 23.

Referring to claim 28, the Majewski reference discloses all subject matter as discussed with respect to same comment as with claim 25.

Referring to claim 29, the Majewski reference discloses all subject matter as discussed with respect to same comment as with claim 24.

Referring to claim 30, the Majewski reference discloses all subject matter as discussed with respect to same comment as with claim 26.

Referring to claim 31, the Majewski reference discloses all subject matter as discussed with respect to same comment as with claims 1-3.

Referring to claim 32, the Majewski reference discloses all subject matter as discussed with respect to same comment as with claim 4.

Referring to claim 33, the Majewski reference discloses all subject matter as discussed with respect to same comment as with claim 5.

Referring to claim 34, the Majewski reference discloses all subject matter as discussed with respect to same comment as with claim 6.

Referring to claim 35, the Majewski reference discloses all subject matter as discussed with respect to same comment as with claim 7.

Referring to claim 36, the Majewski reference discloses all subject matter as discussed with respect to same comment as with claim 8.

Referring to claim 38, the Majewski reference discloses all subject matter as discussed with respect to same comment as with claims 1-3.

Referring to claim 39, the Majewski reference discloses all subject matter as discussed with respected to same comment as with claim 4.

Referring to claim 40, the Majewski reference discloses all subject matter as discussed with respected to same comment as with claim 5.

Referring to claim 41, the Majewski reference discloses all subject matter as discussed with respected to same comment as with claim 6.

Referring to claim 42, the Majewski reference discloses all subject matter as discussed with respected to same comment as with claim 7.

Referring to claim 43, the Majewski reference discloses all subject matter as discussed with respected to same comment as with claim 8.

Referring to claim 45, the Majewski reference discloses all subject matter as discussed with respected to same comment as with claim 1.

Referring to claim 46, the Majewski reference discloses all subject matter as discussed with respected to same comment as with claim 4.

Referring to claim 47, the Majewski reference discloses all subject matter as discussed with respected to same comment as with claim 5.

Referring to claim 48, the Majewski reference discloses all subject matter as discussed with respected to same comment as with claim 7.

Referring to claim 50, the Majewski reference discloses all subject matter as discussed with respected to same comment as with claim 10.

Referring to claim 51, the Majewski reference discloses all subject matter as discussed with respected to same comment as with claim 11.

3. Claims 37, 44 and 49 are rejected under 35 U.S.C. 103(a) as being unpatentable over Majewski et al. U.S. Patent 6,271,525.

Referring to claims 37, 44 and 49, the Majewski reference discloses all subject matter as discussed in respected claims 31, 38 and 45, except the reference does not explicitly state forming the wavelength converter comprises a vacuum or vapor deposition step. Official Notice is taken that both the concept and the advantages of providing a vacuum or vapor deposition step for forming the wavelength converter (x-ray or gamma detector) are well known and expected in the art. It would have been obvious to providing a vacuum or vapor deposition step for forming the wavelength converter (scintillator 12) in Majewski as this step is known to offer high quantum efficiency down to the vacuum region, making them ideal for wavelength detection.

Conclusion

4. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.
 - a. Tran et al. U.S 5,420,452 discloses a radiation detection device includes a plurality of pixels; each pixel includes a photoelectric conversion element and switching element; generating a current when the pixel is exposed to x-ray.
 - b. Kobayashi et al. U.S 6,476,867 discloses a x-ray system having a two-dimensional photoelectric conversion apparatus.

Art Unit: 2612

5. Any inquiry concerning this communication or earlier communications from the examiner should be directed to **Lin Ye** whose telephone number is **(703) 305-3250**. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, **Wendy R Garber** can be reached on **(703) 305-4929**.

Any response to this action should be mailed to:

Commissioner of Patents and Trademarks

Washington, DC. 20231

Or faxed to:

(703) 872-9314

Hand-delivered responses should be brought to Crystal Park II, 2121 Crystal drive, Arlington, VA., Sixth Floor (Receptionist).

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the Technology Center 2600 Customer Service Office whose telephone number is **(703) 306-0377**.



WENDY R. GARBER
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 2600

Lin Ye
August 20, 2003